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ORIGINAL ARTICLE

Effects of Electroconvulsive Therapy and Quality of Life in Patients with Schizophrenia and Bipolar Disorder

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ABSTRACT
Despite its widespread application, the impact of "electroconvulsive therapy" (ECT) on the quality of life (QoL) of patients with schizophrenia and bipolar disorder, as well as its correlation with symptomatology and cognitive changes, remains unclear. This study aims to explore the connection between QoL changes and alterations in psychiatric symptoms and cognitive function following ECT treatment in schizophrenia patients. A prospective study was carried out with twenty individuals having medical condition schizophrenia and bipolar disorder who underwent ECT. Sociodemographic and clinical data were procured from their medical records. Evaluations of changes in quality of life, psychiatric symptoms, and cognitive function were performed after the complete course of ECT sessions. The intensity of symptoms was measured using the BPRS scale, while quality of life was assessed with the WHO QoL scale. The group showed significant improvements in two quality-of-life domains, except for satisfaction with social relations and physical health. Additionally, the total BPRS score significantly decreased from an average of 49.6 to 29.15 after ECT sessions, with a p-value of less than 0.05. Thus, ECT was associated with a rapid reduction in symptom severity. ECT also contributed to an overall improvement in the Quality of lifestyle for patients with schizophrenia. A decrease in mental health symptoms was notably correlated with improved psychological well-being, as well as the enhancement in executive function was linked to better wellness.
Keywords: *Schizophrenia, Bipolar disorder, WHO-QoL, Electroconvulsive therapy, BPRS*

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INTRODUCTION

Electroconvulsive treatment employs an electric current to induce a widespread brain seizure in a patient undergoing either general anaesthesia or intravenous sedation. Bipolar disorder sufferers, schizoaffective disorder, schizophrenia, catatonia, and neuroleptic malignant syndrome may potentially benefit from it, albeit its main use is in the treatment of severe depression. But because of false information about procedural methods, the practice has gained an unfavourable image. ECT quickly reduces suicidal ideation; after one week, sixty one percent of patients reported total resolution, and 81% of patients experienced complete resolution following ECT treatment [1]. A patient should undergo an extensive mental evaluation, a physical examination, and occasionally an electrocardiogram (ECG) to determine heart health, before starting a course of ECT treatments [2]. Twenty controlled trials comparing there were no appreciable changes between sine wave and short pulse machine found no discernible differences in efficacy, affirming ECT's superiority over medication and simulated ECT [3]. A naturalistic study of 38 treatment-resistant patients revealed that ECT shows a high efficacy, achieving a remission rate exceeding 50% [4]. Similarly, another naturalistic study involving 44 MDD patients treated with various ECT methods demonstrated stable results six months post-treatment, with side effects remitting

before treatment completion [5]. ECT is believed to be a potential treatment for suicidality, severe psychosis, food denial resulting from depressive disorder and catatonia [6, 7]. In bipolar manic-depressive disorder patients may receive ECT treatment [8]. In general, QoL is improved by early identification and supervision of neurological conditions [9].

MATERIAL AND METHODS

This prospective, observational study was carried out for 6 months at a tertiary care hospital. Institutional Ethical Committee approval was obtained before starting the study. The study included 20 consecutive hospitalized patients suffering from treatment resistant Bipolar or schizophrenia in which 2 left the treatment due to financial condition and opted for medication alone. Patients diagnosed to be suffering from bipolar disorder or schizophrenia by ICD-10 (Organization, 1992), with age group 18 years and above and those who gave written informed consent were included to participate in the study. Electroconvulsive treatment (ECT) was administered to patients twice a week. The overall number of sessions was not predetermined and depends on the patient's improvement. ECT was discontinued if no further progress noted after two consecutive sessions or if the patient or their informant opts out of further treatment. The procedures for administering anesthesia and ECT adhere to standard medical guidelines. Every patient maintained their existing antipsychotic medications at the same dosage they were using when they joined the study. If the patients showed a positive response to ECT, the same drug regimen was continued after the ECT treatment. The quality of life was assessed using the World Health Organization Quality of Life Scale-brief version (WHO QoL-BREF). This evaluation was performed at the end of the ECT treatment course. The WHO QoL-BREF generates a quality-of-life profile, with scores across four domains. These domain scores indicate an individual's perceived quality of life, where higher scores represent a better quality of life. Additionally, each patient underwent an assessment using the Brief Psychiatric Rating Scale (BPRS) both at the baseline and after finishing the ECT treatment. Data analyses were performed using Statistical Package for the Social Sciences (SPSS Version 27) program (IBM, Chicago, IL, USA). Descriptive analysis and Kolmogorov-Smirnova, Shapiro-Wilk test for normality were performed to analyze the data.

RESULTS AND DISCUSSION

Over a six-month period, study was conducted with 20 subjects diagnosed with schizophrenia and bipolar disorder at the psychiatry department of a tertiary care hospital. Demographic assessment of participant subjects is shown as per Table 1. Of these participants, 13 had schizophrenia, and 7 had bipolar disorder. Due to financial difficulties, two patients discontinued their ECT sessions. In total, 20 patients received either bitemporal or unilateral ECT, with an average (SD) of 7.63 (2.03) sessions per patient, using anaesthetics like Propofol, ketamine, and fentanyl. Two patients were at high possibility of suicide, and one patient exhibited catatonia. The study revealed that ECT significantly reduced psychiatric symptoms and enhanced the quality of life for those with schizophrenia and bipolar disorder, with improvements observed as early as 2-3 weeks post-treatment. It was found that patients with schizophrenia or schizophrenia spectrum disorder showed notable improvements in their quality of life after six ECT sessions, administered 2-3 times per week. Throughout the research, the majority of the patients were on antipsychotics such as haloperidol, clozapine, risperidone, quetiapine, and promethazine. These medications were maintained during the course of the ECT treatment.

The group showed significant improvement in the physical capacity and psychological domains of the WHO-QoL. However, improvements in the social and environment domains were not significant (Table 2, Figure 1 to 8). These findings suggest that medication alone may not be sufficient to enhance the quality of life in all areas. There is a substantial alteration in the BPRS Scale following ECT sessions. A research synthesis found that second generation antipsychotics have advantages over traditional medications in improving subjective quality of life [10]. In the study by Elias A et al., an 80-year-old patient with mania responded rapidly to ECT. The efficacy of ultra-brief ECT in treating acute mania, compared to a pharmacotherapy group, demonstrates the potential to expand treatment options [11]. Higher age is the greatest predictor of positive outcomes for a favourable response to ECT. Although earlier studies have shown inconsistent results, Van Diermen et al. found that ECT is more effective in older patients. Likewise, Haq et al. noted a better response to ECT with increasing age in their meta-analysis but questioned the clinical significance of this finding [12]. In a study of [13] suggest that the required number of ECT sessions for a response can vary by disorder. Gender has no impact on the necessary ECT dose. Variations in ECT parameters across different settings may affect the generalizability of these findings. The outcomes show that psychomotor delay and characteristics of psychosis serve as robust indicators of ECT usefulness and elucidate the connection between ECT potency and age. Rather

than emphasizing the patient's age, clinicians should prioritize assessing the presence of psychomotor disturbances and psychotic features in depression when contemplating ECT treatment [14].

Table 1: Demographic Assessment of Patients

Schizophrenia (subjects) Male Female	**Number of Patients** 13 08 05	
Bipolar (subjects) Male Female	07 06 01	
	Mean	S.D.
Age	35.95	3.513
No. of ECT	7.65	1.98
BPRS (before)	49.6	7.13
BPRS (after)	29.15	4.80
Single	09	
Married	09	
Window	02	
Urban Rural	15 05	
Illiterate	01	
Primary	05	
Secondary	02	
Higher Secondary	02	
Graduate	10	
	Percentage of Patients SCZ	BPAD
Clozapine	28.57%	16.67%
Olanzapine	14.29%	16.67%
Risperidone	21.43%	33.33%
Haloperidol	42.86%	83.33%
Lithium	14.29%	33.33%

Table 2: Statistical Analysis of WHO-QoL Domains

WHO-QoL Domains	P Value	Std deviation
Physical	.101*	10.898
Psychological	.007**	12.311
Social	.107*	14.463
Environmental	.006**	21.909

P<0.05 ** highly significant, * Not Significant

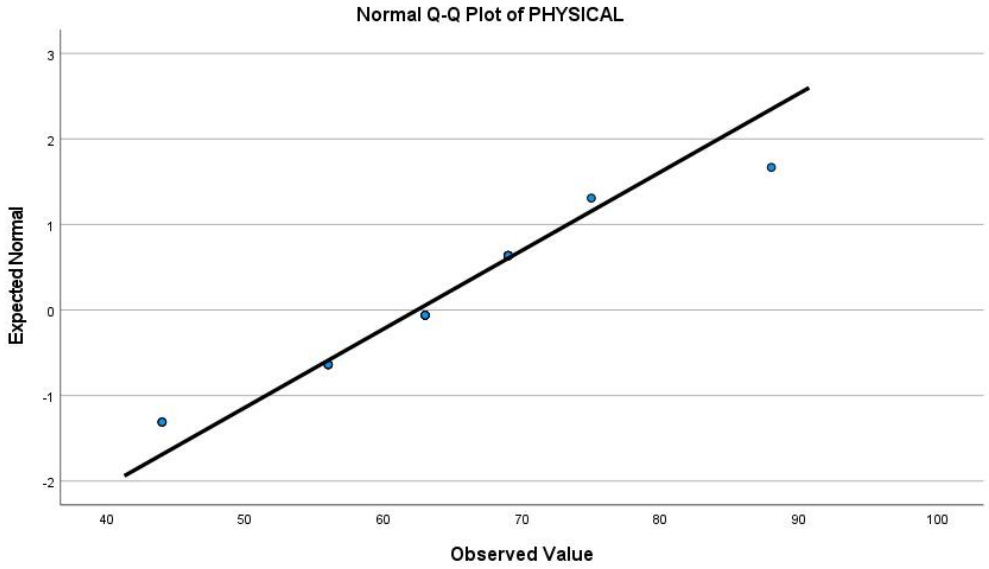

Figure 1: Normal Q-Q Plot of Physical Domain

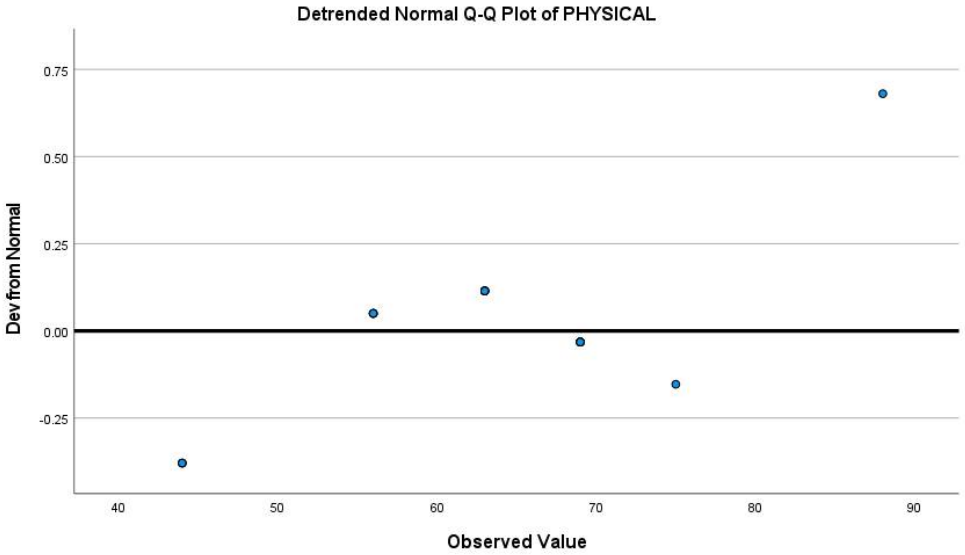

Figure 2: Detrended Normal Q-Q Plot of Physical Domain

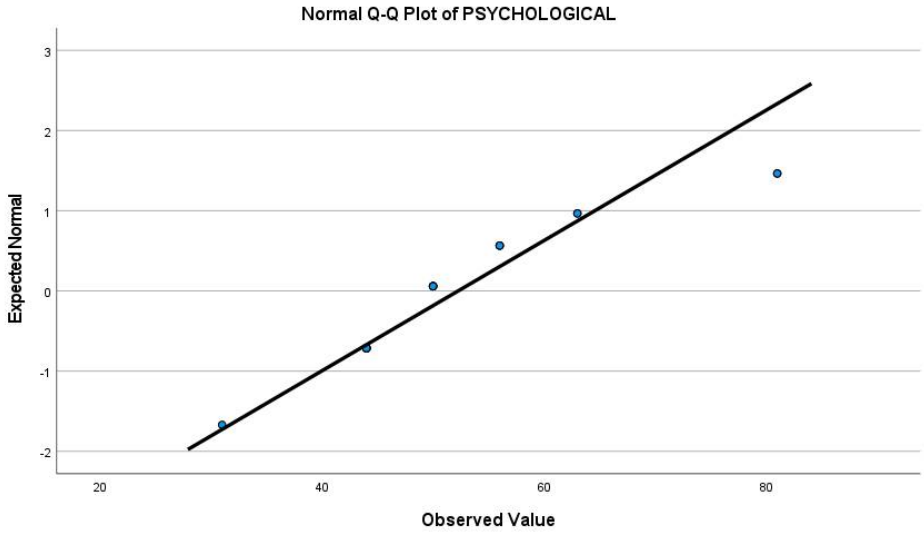

Figure 3: Normal Q-Q Plot of Psychological Domain

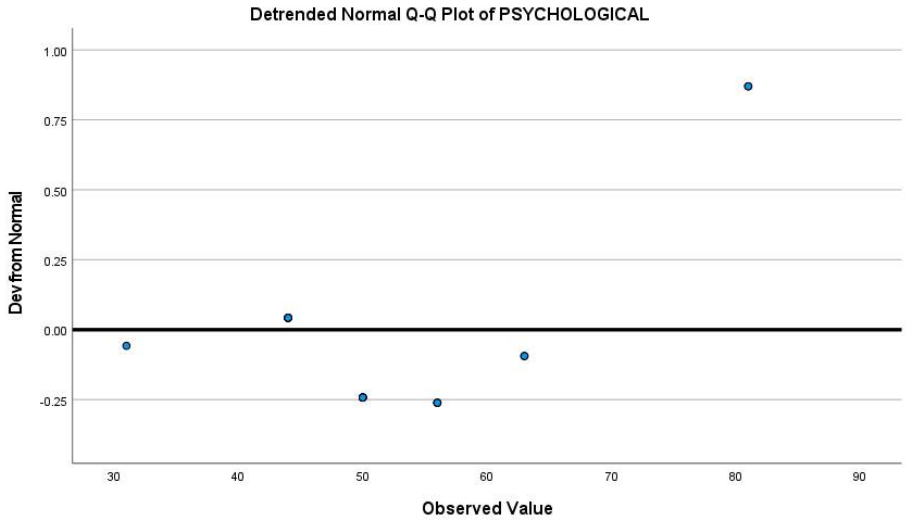

Figure 4: Detrended Normal Q-Q Plot of Psychological Domain

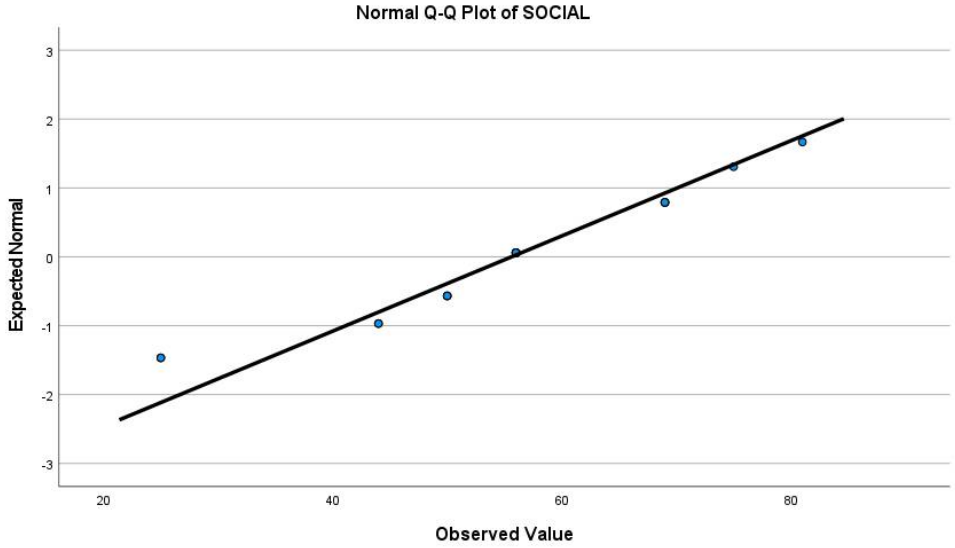

Figure 5: Normal Q-Q Plot of Social Domain

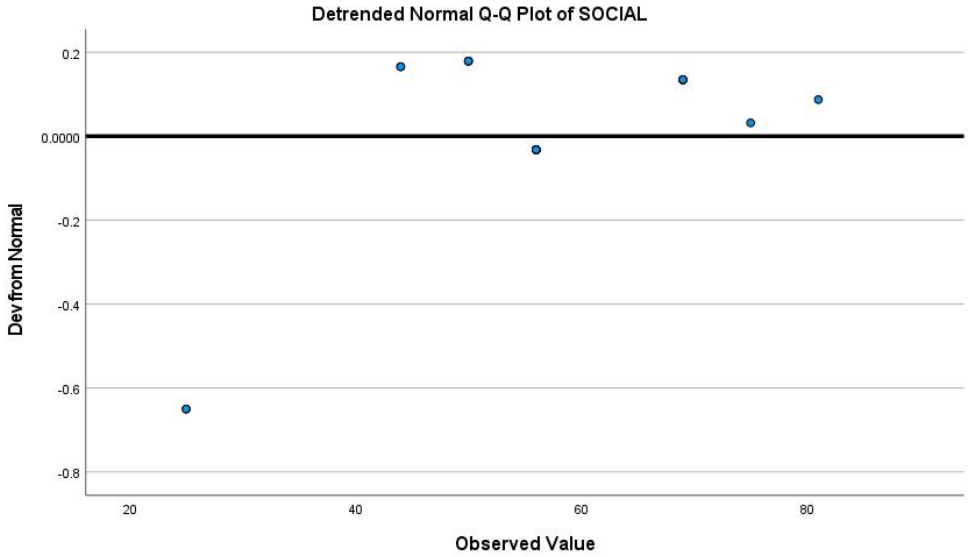

Figure 6: Detrended Normal Q-Q Plot of Social Domain

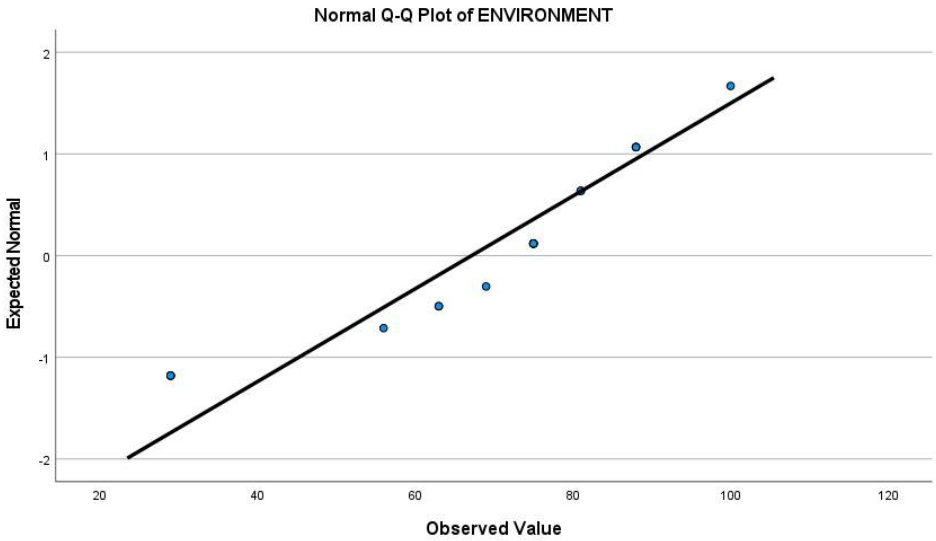

Figure 7: Normal Q-Q Plot of Environment Domain

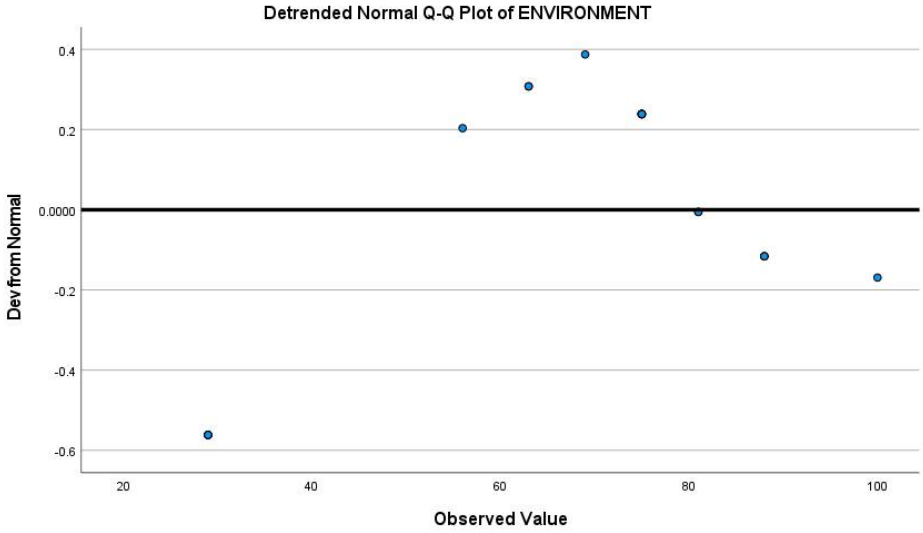

Figure 8: Detrended Normal Q-Q Plot of Environment Domain

CONCLUSION

In brief, ECT brought about a swift and comprehensive enhancement in the subjective wellbeing for those experiencing schizophrenia and bipolar disorder. The decline in symptom severity becomes particularly evident following ECT sessions, as measured by BPRS. This amelioration in symptomatology translates into improved QoL, particularly in the realms of psychological and physical well-being. Nevertheless, there is a noticeable absence of progress in the social and environmental domains. Our initial study underscores the necessity for forthcoming prospective investigations to corroborate these findings and to gather valuable insights into patient-reported requirements and advantages of ECT. The sample size was relatively small due to limited time. Our study had certain limitations, including a short duration, an open-label design, as well as the lack of a control group. Patients continued using the antipsychotics they were on before entering the study. Health-related quality of life was solely assessed immediately after the final ECT session. A larger sample with a longer follow-up period might provide a clearer picture of the quality of life among patients who prefer treatment with both ECT and neuroleptics drugs compared to those using only neuroleptics drugs.

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INFORMED CONSENT STATEMENT

Informed consent was obtained from all subjects involved in the study.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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